

MEDICAL OFFICERS OF SCHOOLS
ASSOCIATION

The
**Educational Treatment
of Stammering Children**

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The Educational Treatment of Stammering Children.

THOMAS J. T. McHATTIE, M.D., Edin.

*An address read before the Medical Officers of Schools
Association, May 11th, 1911.*

It is always sad to have to confess, either of ourselves or of our country, that we are out of date, and that we have made no effort to keep abreast of our neighbours in some particular, and perhaps important, direction. That this is the present position of our profession with regard to the treatment of stammering I think no one will deny. While we have advanced in other directions with enormous strides, we have been content to pass the unfortunate stammerer by, and to leave the treatment of his condition in the undisputed possession of any unscrupulous quack who may choose to advertise his special cure.

Yet it is difficult to see why such an important defect should not be entitled to share with other ills the consideration and attention of medical men. Its importance as a pathological state can surely not be denied; nor can a study of it be said to be in any way devoid of interest. There is a feeling, I think, that to take up the treatment of stammering is to proclaim oneself a quack. Yet I can hardly imagine an idea for which there is less foundation. Again, stammering is said to be a troublesome condition to treat, and one in which good results can only be hoped after prolonged and painstaking treatment. But this is surely not sufficient reason to lead to its being ignored by us, the only people who, by training and experience, are entitled to treat disease. Once again I have heard it said by doctors that it is of little use treating stammering in children, as these cases tend to improve of themselves, and are better left alone. A little thought, however, of the lives that we ourselves have known that have been rendered miserable, of the careers that have been blasted by this defect, will be sufficient, I imagine, to overcome this last and perhaps most flimsy objection.

While then we in England have been thus content to let matters slide, it has been otherwise in certain other countries, and notably in Germany, where for years classes for the treatment of stammering and other defects of speech have been held under medical supervision, with results which not only justify their existence, but which should put us laggards to shame.

In the treatment of this affection various methods have, from time to time, been advocated. Some of these methods, worked in the proper scientific spirit, have been open and above-board. Others—and their name is legion—have been of the secret variety; some have been good and have yielded highly satisfactory results, others have been utterly worthless and sometimes even barbarous. In the present short paper it is not my object to discuss the merits and demerits of these various methods, most of which, as I have indicated, can at once be put on one side. Nor is it easy, or, in fact, desirable at the present juncture, to attempt to enter into anything like a detailed account of the treatment of a condition of which we have as yet had so little experience, in this country at least. In the experimental centres, which it is hoped will shortly be opened in London, opportunities will be given of studying the defect in large numbers of cases; but, as Dr. Kerr pointed out in his last annual report, both doctors and teachers will have to feel their way gradually to a rational system of treatment. In the meanwhile it is well that we should discuss the subject from the point of view of broad principles, on which may be built later the more detailed superstructure which experience alone can supply. The few short remarks which I propose to make on the subject will be found, I am afraid, scarcely worthy of the somewhat high-sounding title which appears at their head. They are intended not as an exposition of the educational treatment of stammering children, but merely as a rough guide to a discussion, from which information far more valuable than I can impart will, I feel sure, be obtained.

Stammering is a purely functional neurosis, unattended, in the vast majority of cases, by any gross physical defect, and occurring frequently in those whose family history shows a predisposition to neurotic disorders. Apart from those cases in which one finds this general tendency to neurosis, there appears to exist in certain families an inherited weakness of the nerve structures underlying the function of speech. In such families we shall find several members affected, it

may be in different ways. One will perhaps stammer, another will have a difficulty in pronouncing certain letters, and in another the development of speech may be delayed to the age of four, five, or even later. These different members of the family may be closely or more distantly related; they may be of different generations; and again, and this is important, they may never have seen or held any communication with each other.

These facts would seem to point to a sort of diathesis, predisposing not to any one particular form of speech defect, but to a generalised weakness in the nerve mechanism of speech, giving rise, under favourable conditions, to one variety of defect or another according to circumstances. I believe that, if we could always discover it, this predisposition would be found to be present in a very large majority of all cases of stammering; and, further, that it accounts for the frequency with which the defect follows some severe nervous shock, prolonged illness, or other depressing influence by which the vitality of the already weakened nerve elements is further lowered.

It should not be forgotten, however, that while this tendency does undoubtedly exist, stammerers, as a rule, show no lack of intelligence, or even of intellectual power. This fact, I think, a glance into the history of the world will confirm. Several of the cases which I myself have investigated have been in highly intelligent children who, if they have not taken a high place at school, have been kept back by their inability to compete with others more fluent of speech rather than by any lack of mental capacity.

This neurotic predisposition on the part of stammerers has an important bearing on the treatment of the condition, and accounts in large measure for the frequent failure of those more or less mechanical methods which have so often been adopted with a view to curing it. So many of these methods, even the best of them, have been of the nature of tricks, which the pupil, after much perseverance, has had to learn, but which, in the moment of agitation he as quickly forgets. There is something more needed than mere mechanical exercises, for speech is anything rather than a mere mechanical process. If we think for a moment of the mechanism concerned in the production of speech we shall find that it is composed partly of a delicately co-ordinated series of muscular acts, receiving their impulses in the ordinary way from the cerebral cortex; but that, above all, and intimately associated with its every phase, are those higher centres which constitute the mind,

of whose exact position in the brain we are not certain, but whose functions are of such supreme importance in this highly complicated process. It is to these higher centres, I believe, that we are to look for the seat of the mischief; it is to them that we are to turn our attention if we are to hope for a successful issue as a result of our attempts at a cure.

But it will be asked how are these inaccessible regions to be reached? How, if we do not even know their position, are we to find a way of affecting them? On this question turns the whole problem of the scientific treatment of stammering, and, difficult though it may appear to answer, it is one which we shall have to face.

I believe that there are two ways by which we may hope to gain our end: One is by indirectly affecting the higher centres through the muscles concerned in the functions of respiration and speech, and the other by endeavouring to reach them through the more direct agency of suggestive therapeutics.

The first of these methods is the one usually employed, and is frequently very successful. It consists of carefully graduated exercises, which have for their object the strengthening and development of the respiratory muscles, as well as the regulation of the function of respiration, which is so often at fault. By these exercises the patient is taught first to breathe properly, that is to fill the chest at proper intervals, and so to regulate the outflow of air through the glottis that it may be used to the best advantage in the production of sound. Secondly, he is taught how to produce his voice aright, and to combine and co-ordinate the two functions of breathing and speaking in such a way that in time the process becomes a natural one, and the difficulty disappears.

The second method, that of the employment of hypnotic suggestion, I shall return to in a moment, but in the meanwhile it may be well to look a little more closely into the nature of the defect, and to ascertain in what way the exercises I have mentioned are likely to be of benefit.

In his classical work on the subject, Professor Wyllie has compared the production of speech to the performance of a good player upon the violin, and has shown how each hand, while performing its own particular work, must co-operate with its fellow in a graceful and harmonious manner. If the least hitch occur between the action of the two hands the music will cease. So it is with speech. The larynx, the producer of the vocal element, represents the bow hand, while

the oral mechanism may be taken to represent the string hand of the player. If the two mechanisms, the laryngeal and the oral, do not work exactly together in a perfectly co-ordinate manner, speech becomes for the time being impossible, and stammering occurs. In some cases there is a want of promptitude in the laryngeal mechanism, and the patient is unable to utter the open vowel sounds; but far more frequently the hitch occurs over the consonants, and chiefly over those of an explosive character. Here the energies are directed into the oral mechanism, to the neglect of the laryngeal. The patient attempts to form words with his mouth, and forgets to produce voice with his larynx. The result is that he either silently sticks over the initial word of the sentence, or he emits a series of voiceless repetitions of the initial letter, in which case his condition is known as stuttering.

In such cases, if the patient be made to sing or intone his words, if, that is to say, his attention be directed to the production of voice rather than that of speech, his difficulty for the time disappears. It is a well-known fact that stammerers are frequently good singers, and it is a rule almost without exception, for the reason I have mentioned, that stammering never occurs during singing. It is important, therefore, that the patient should be trained to speak always with a full voice, that his laryngeal mechanism may become developed, and the habit of misdirecting his energies be overcome. For this reason, too, it is a good plan to encourage the patient to learn singing, and to practise reading aloud daily in a full and sonorous voice.

While attending to the function of voice production that of respiration should not be neglected, and properly regulated breathing exercises are, I believe, of the utmost importance. Not only are they of service directly by improving the natural breathing, which is often faulty, the stammering patient frequently attempting to speak with an empty chest, but, by increasing the development of the respiratory muscles, they have an important effect on the general health of the patient. These exercises, too, are not without a certain beneficial psychical effect, and for this reason, if for no other, are to be encouraged. The patient feels that he is doing something definite for his cure, he becomes interested in his exercises, practises them rigorously night and morning, watches with pride his increasing power of chest expansion and his growing muscles, and gradually gains confidence in himself and his teacher, and thus removes the first obstacle to the complete recovery of fluent speech.

If there is one thing more than another that we have to aim at in treating stammering, it is this restoration of self-confidence, which is so lacking in the stammerer. It is the fear that he will not be able to get his words out that causes half the misery from which he suffers; and it is this very fear that produces the breakdown when the critical moment arrives. This condition is very well illustrated in a case cited by Gutzmann¹ of a young man who, on entering a shop to make a purchase, would be pleased at finding that he was not likely to be served for some minutes, there being three or four other customers present whose turn would come before his. As each customer is served, however, and the time for speech draws nearer, his confidence leaves him, and his dread of having to speak increases until, when at length his own turn arrives, he has worked himself into such a condition of nervousness that he finds it quite impossible to bring out a single word, and he is obliged to indicate the article he requires by pointing to it on the counter. The necessity of speaking having passed, on being handed what he wants, his fear subsides, and he is able to pronounce the word for which he has before sought in vain. A patient of my own told me that if he goes to a shop and is served at once, he does not stammer, but that if he is kept waiting, when spoken to by the shopman he cannot get out the word he wants. While waiting he has been anxiously thinking of what he would say, and whether he would be able to say it.

To overcome this lack of confidence on the part of the patient is no easy task, but, as I say, it lies at the root of our treatment, and should be made our first aim. It is in this direction that the importance of psychotherapy comes in, and it is only by its wise employment that we can hope for any wide success in treatment. By psychotherapy I do not necessarily refer to actual hypnotism, though I believe that by the employment of hypnotism many cases can be cured outright. Without actually producing the hypnotic state, however, much can be done by gaining the patient's confidence, by making him believe that he can be cured, by letting him realise that his organs of speech are perfect, and that beyond his mere nervous condition there is no reason why he should not use these organs as well as other people. We all know how valuable is the effect which a tactful doctor is often able to produce on the mind of a patient who is suffering from even some bodily disorder, but when the disorder is a nervous one the effect is much greater. Having

¹ Das Stottern und Seine grundliche Beseitigung, Part I, p. 20.

once produced that condition of mind on the part of his patient, the doctor has gained a great power, and should make use of it to the utmost limit of his ability. The mind of the patient is then ripe to receive suggestion, just as ripe as though he were actually under hypnotic influence, and it is then that this branch of psychotherapy should be made use of.

In this country we have so far had little experience of the use of suggestion in the treatment of stammering, but I believe that there is a wide field open to us in this direction. The condition, as I have pointed out, is a mental one, and it is only by directly influencing the mind that we shall succeed in curing it.

In a good many cases one finds associated with stammering the presence of enlarged tonsils and adenoids. These should at once be removed, and their removal is frequently followed by marked improvement, as happened in a case I saw only a day or two ago in one of the schools. Whether the enlarged tonsils and the adenoid growths are to be regarded in any way as causal factors I think is open to question, and I am certainly inclined to attribute the improvement which follows their removal more to the mental effect of the operation than to anything else, yet by the impairment they cause to the function of respiration, and by their untoward effect on the general health of the patient, their presence is certainly undesirable, and they should be got rid of. In like manner any source of peripheral irritation, such as a tight prepuce or even a carious tooth, should be dealt with, as a means of clearing the ground and removing any obstacles that may possibly interfere with our further treatment.

All tricks of speech should be avoided, and we should aim at the production of a natural rather than of an artificial manner of speaking. The judicious combination of suggestion with suitably graduated exercises of the breath muscles, as well as with speech exercises having for their aim the proper production of vowel and consonant sounds, are, I think, the lines on which we should base the scientific treatment of this most troublesome affection; nor should we fail to remember that no form of treatment is likely to be of any avail that does not also include those general hygienic principles which we have learned to regard as necessary in dealing with other diseases.

Medical Officers of Schools Association.

Meeting held at 11, Chandos Street, on May 11th, 1911.

Discussion on Dr. McHattie's Paper.

THE PRESIDENT (Dr. Shelly), in opening the discussion on Dr. McHattie's paper, deprecated strictures passed on those who chose to go off the beaten track in the investigation of disease. Those considered charlatans by one generation were venerated as pioneer scientific workers by the next. He pointed out that stammering was found chiefly in those classes who were brought up to speak across the dinner-table in contradistinction to those who speak in the open air. This seemed to have some bearing on the question of speaking from an empty chest. Amongst savages stammering did not exist.

DR. HULBERT observed that two points were raised in the paper, as to whether stammerers should be treated from the physical to the mental or from the mental to the physical. It was suggested that people who stammer are of the nervous type, and the right way is to treat by suggestion so that co-ordination will be brought about. Experience in teaching of voice production in those who do not stammer shows that no amount of suggestion will teach them to produce voice. The only way was to treat the body, so that the part of the body concerned in voice is working properly; only by that means could any result be obtained, and that was the way you must begin with stammerers.

Although it was true that stammerers could be got to read a page from a book fluently and yet would stammer at the end in reply to a simple question, still it could be stated that want of confidence could only be coped with by teaching them what to do in order to get results.

He was, therefore, disappointed to hear from the opener that mechanical helps were not to be approved of. It seemed to him that the only reasonable method of procedure was to take the various component parts of the mechanism of speech one by one, learn how to perform correctly each separate act, treating the pieces one by one, preparatory to co-ordinating them together. His plan of attack would, therefore, seem to be the reverse of the one indicated by Dr. McHattie. He would proceed from the physical to the mental and not *vice versa*.

The proper way to start was by concentrating on breathing itself. But first you must decide the proper method of breathing to be inculcated. If you picked up any series of books on breathing, you would find that not only do they contradict one another, but each would contradict itself. Most of them taught that you must get a lot of air in your lungs, but in the speaker's opinion that was a mistake. What you had to do was to get the chest fully elastic. Anything interfering with the flexibility of the chest was wrong; deep breathing was wrong, it resolved itself into forcible breathing, bringing into play the accessory muscles of respiration, and this interfered with chest elasticity. If only that one question of the proper method of teaching breathing were settled we should already be a long way towards not only curing stammering but towards recovery of the health which we as a nation were said to have lost.

There were certainly cases in his experience in which patients were got to do everything right in the production of voice and yet relapses of stammering occurred. If *then* suggestion could do anything it would be most valuable; but that was the end and not the beginning. Get the body in the proper condition and then suggest that they have the power to free themselves from stammering, and after much patient trouble you might get a cure.

MR. CORTLANDT MACMAHON then addressed the meeting.

In making a few remarks on the curative treatment of stammering I do not wish to dwell upon the causes of it, as it is well known that they arise from an infirmity in the motor nervous power. However, in a tract written in 1850 by one Henry Munro, and which is in the library of the Royal College of Surgeons, are the following lines which, if I may say so, are exceedingly interesting, clear and concise. They are as follows: "There exists in some individuals an idiosyncrasy amounting probably only to a great irritability or sensi-

bility of fibre in that part of the brain or ganglia, as well as their efferent nerves, which control the motions requisite for speech, and this peculiarity exposes it to be most easily deranged, and driven into spasmodic action by the ordinary mental desire to speak. If there exists a tendency to local congestion about any of the motor fibres of the brain or spinal ganglia, it would itself cause irritable spasmodic action or paralysis (in proportion to the amount of pressure) of the muscles supplied by them. We cannot directly check such local congestions, yet we can indirectly, through control of the emotions of the mind by an effort of will."

I will now pass right away to the practical part of the curative treatment of stammering, only remarking that the cure of stammering must be as much moral as it is physical, and requires, of course, a dual method of treatment from both these standpoints.

In dealing with a stammerer, in the first place one is well advised in ascertaining whether he has been medically examined for any nasal obstruction or adenoid growths, and if he has not, one should see that such examination is made, otherwise one has to contend with difficulties which are unnecessary, and which may militate very strongly against a normal progress towards recovery.

It is interesting to know the history of the defect in each case, as to whether it has existed from a very early age, or whether it has been acquired later on in life. Sometimes one finds that there is a family history of stammering, so that, presumably, there has been a very strong predisposition to the acquirement of the defect; but one finds also very frequently that the defect has been acquired by the sufferer having been brought into contact with another stammerer, and has acquired it from him—possibly by thoughtless imitation or by the force of example—and in these cases again one also presumes there was a predisposition to the defect in the individual, otherwise there would be very many more cases than there are.

One impresses on a stammerer from the start the very great necessity of his putting up a strenuous fight against his defect, never relaxing his efforts, or being discouraged by temporary relapses, which relapses do occur, but at increasingly long intervals, during the progress towards recovery, and which I like to compare to those of the golfer, who, in spite of all his efforts and care, is certain to have his off days

before he gets to that state of excellence when he practically always plays a consistently good game.

Before one pays attention to anything else the breathing is taken in hand. The necessity of this I need not enlarge upon, seeing that the voice is simply air in vibration resounding in the resonating chambers of the body. Whole lung breathing must be acquired to perfection, and in acquiring whole lung breathing I pay particular attention to inferior lateral costal breathing, and I develop this method of breathing with the greatest care, so that I get a very marked expansion in that region. The upper chest is not neglected, and there are many efficacious and simple exercises which ensure there being an all-round excellence of thoracic development. When the stammerer has learnt how to inflate the lungs thoroughly, I then teach the strong and deliberate contraction of the abdominal muscles, first as a movement of its own, then following the full inflation of the lungs, so that finally one gets first the fully inflated lungs, then the strong contraction of the abdominal muscles, called the "abdominal press," then the spring back of the abdomen to its natural line, and then, of course, the repetition of the three movements. I must not dwell further upon the breathing, except to say that during inspiration the abdominal wall is never relaxed beyond its natural line, so that there is no undue descent of the diaphragm and abdominal viscera. The expulsion of the air, both in force and quantity, is practically entirely controlled by the action of the abdominal muscles, in the first place by their action in pulling downwards and inwards the lower ribs which had ascended and everted during inspiration; and in the second place, by their simultaneous action on the abdominal viscera causing the ascent of the diaphragm and a rapid diminution of the thoracic capacity. One easily sees that all real tone in voice depends primarily on this strong contraction of the abdominal muscles following a full inflation of the lungs, as by it the resonating chambers are given their proper chance of performing their functions to the best advantage, through being always supplied with a sufficient amount of vibrating air.

After the rudiments of breathing are grasped the voice itself is worked upon. One starts upon the well-known M or humming sound, which gets heavy vibrations everywhere, and more particularly in the nasal cavities. When M is produced properly then come the big vowel sounds "oo," "oh," "aw," "ah," "a," and "ee." The mouth opens by degrees from "oo" to "ah" and closes down for "a"

and "ee." The great importance of these sounds lies in the fact that each has its shape at the lips, its proper distance between the teeth, and its tongue position. The lip shape and the position of the tip of the tongue are voluntary movements and can soon be taught; but the position for the tongue, as a whole, is a very different matter, and in some cases a very difficult one. I find that once one can get the tongue to lie flat in the mouth for the big "ah" sound, it will by degrees set itself accurately for the other vowel positions. By getting the sterno-thyroid muscles to contract strongly one soon gets the proper position for the "ah," but the muscles are only deliberately contracted when the voice is not in use, and they are left to act involuntarily during vocalisation, otherwise you would immediately get constriction of the throat, palate, and tongue muscles. I nearly always find that the larynx is very high in the throat with stammerers, and its lower position must be acquired as soon as possible, otherwise the oral resonator for each vowel will be imperfectly formed owing to interference from the tongue. When the resonator for each vowel is correctly shaped for, the voice immediately is supplemented and enriched by the overtones and harmonics which always accompany a pure vowel sound.

These main vowels must be made perfectly familiar to the stammerer, otherwise, in my opinion, a permanent cure is almost impossible—certainly in bad cases. In every word a main vowel position occurs; it may occur alone in words, like "ah" in "hart," "aw" in "saw," "ee" in "sleep," and so on; or it may occur in combination with another main vowel such as, for instance, in a word like "boat," where we get "oh" and "oo," in "light" "ah" and "ee," in "boy" "aw" and "ee," and in words like "town" and "round," etc. (some of the stumbling-blocks of the Cockney, by the way) we get "ah" and "oo," in "dew," "ee" and "oo," and so on. These are all rapidly learnt and shaped for, but the very real difficulty comes when the main vowel position has to be discovered in words containing subordinate vowels. This is simply a matter of skilled instruction and practice. In words like "never" we get the "a" position; in the word "love" we get "ah"; "brother" also has "ah." It is remarkable how often "ah" occurs in words made up of subordinate vowels; it is an excellent thing that this is so as, whenever it is met with, the jaw drops by its own weight to its most open position, thereby giving every

chance for a very powerful air column to ascend. When once this perfect vowel production is grasped it is never forgotten, and the correct vowel position for every main or subordinate vowel, or combination of vowels is recognised in any word, and the best possible result is at once attained by the purity of the vowel production.

Leaving the vowels for a moment and coming to the consonants a very interesting study is entered upon, but with regard to them I must only say that they can be classified in various ways and assigned to their various stop positions; but for practical purposes, especially in the case of children, they can be divided into two classes—the voice and the breath consonants. The voice consonants being, of course, produced with the vocal cords approximated. The tongue position for the consonants is a very important matter, and the strength with which it leaves the palate for the linguo palatals must be made particular note of, especially in the case of the stutterers. Perfect knowledge of the consonants is absolutely essential, as if they are given their wrong qualities checking at once occurs.

The next step is the combination of the vowels and the consonants, and it is at this point that the most unremitting care and attention of the instructor are required, and it is at this point also that one is able to detect if the groundwork has been properly grasped. I mean by the “groundwork” the breathing, the production of the vowel sounds, and the management of the varying qualities of the consonants. Let all this preliminary training be performed on the singing voice, then, when words and sentences can be perfectly produced and phrased for on the singing voice, lift the singing voice into the speaking voice. In this lies the greatest chance of a complete cure. The sufferer must learn to produce his speaking voice in exactly the same way as that in which he produces his singing voice, except that the volume of air from the lungs is not so great, nor can the vowel sounds be held so long; but the voice can be produced full of music and resonance, and sentences properly phrased for as in song. I am most emphatic in saying that not only stammerers—although for them it is absolutely essential—but *we all should speak on the singing voice*, and I do not mean by this that we must use a silly sing-song voice—I mean that we must acquire a voice full of resonance and music which depend on perfect breath control, perfect vowel production, and perfect articulation.

One finds beyond doubt that the painful spasms and contortions of the bad stammerer are more often than not largely brought about by his vain endeavour to get voice with no air in his lungs; he is striving for the impossible, and when, after being nearly asphyxiated, he gets his breath, the voice comes with a rush. This of itself proves, if proof were necessary, the enormous value of proper breathing. Instead of trying to speak with collapsed lungs, the sufferer must, as I have said already, be taught to fully inflate the lungs whenever he is going to use his voice, and to put a big volume of air through the vocal cords which will set them in strong vibration, and which will very often drive past several of the obstacles raised by nervous action where a feeble expiration would be checked.

Before passing on, perhaps I may give a definite instance of the stammerer's difficulty in producing a word which he does not know how to treat. For instance, in a word like "Dorothy" the stammerer may be speechless, and one may think that it is the "D" that is stopping him, but possibly he can put all the main vowels behind the "D" without any difficulty. As a matter of fact, it is probably the lack of knowledge as to what is the main vowel sound and position contained in the subordinate vowel which is preventing speech. In the word "Dorothy," "ah" is the main vowel sound; let the jaw fall to the full "ah" position at the moment when the tongue leaves the palate with considerable force for the "D," and the word will come out without the slightest trouble. This is only one instance, and, of course, one could give a great many others. It is most remarkable how quickly the stammerer learns to recognise the main vowel sounds in even difficult words, and the way in which he improves as a result is extremely gratifying.

I have said that one must give the stammerer as good a voice as possible, and a good voice is the most refined outcome of perfect physical movement, and therefore the greatest care must be taken to keep the body in a good state of training and fitness to ensure it being strong and fully elastic. The body must be perfectly balanced, and the head correctly poised, and there must be a complete absence of constriction everywhere. The lips should be made great use of in producing the voice, and the orbicular muscle carefully trained so that the lips become exceedingly mobile. One impresses upon the stammerer that the voice must, so

to speak, be lifted right into the lips, and that the throat muscles must be completely relaxed, and he must be reminded continually that the abdominal muscles are, in contraction, the motive power of voice.

My ideas about teaching children in schools to overcome their infirmity are these. They could, I think, be classed together in classes of ten to fifteen, and be taught the right way to breathe, and during the lesson each child could be examined individually to see whether it had acquired the movements properly. They could in class be taught the main vowel sounds and their combinations, first on the singing voice and then on the speaking voice. They could also be taught the varying qualities of the consonants. Then words and easy sentences could be attempted, but at this stage weeding out would, I think, be necessary. Some of the milder cases might proceed together, but the more severe ones would require individual tuition from the trained expert. Whoever has charge of the children should be a person of unlimited kindness, patience, and forbearance. Any rebuke to a stammerer is most injurious, and even a look of disappointment is a mistake; the sufferer, who is nearly always tremendously sensitive, must be always helped and encouraged and never blamed, except, perhaps, for laziness in not practising simple physical exercises. One must gain the complete confidence of the stammerer, and be able to understand his varying troubles and moods absolutely, and be able to explain every phase of his infirmity and demonstrate to him how to overcome it. By this knowledge his emotions will be the more easily controlled, and his progress towards recovery will be distinctly and rapidly noticed by himself and those about him. Once he has got rid of his defect, and will give a few minutes each day to his breathing, physical, and vocal exercises, he need, in my opinion, have no fear of there being any return of his trouble.

DR. HALLS DALLY said he wished to enter upon some points in which divergence from the previous speakers was possible. In most cases Dr. McHattie experienced no defect of the upper respiratory passages, Dr. Dally, on the other hand, found that over 50 per cent. have defects, including tonsils and adenoids, deviated nasal septum or chronic catarrh. All these have their part in producing the effect of stammering. It was a matter of opinion whether the whole process was one of neurosis. There were cases in which sufferers came

of a neurotic stock, but in many cases this was not a primary condition.

In his opinion the respiratory factor was the most important one. Respiration is governed by the respiratory centre in the medulla; this centre consists of two parts. Impulses reaching it on the inspiratory side might not produce the same effect on the expiratory side. The two factors might not be properly co-ordinated, and here we might have a possible explanation of the causation of stammering.

The whole crux of the matter was that stammering in the main was due to absence of breath control during expiration, and if you could get control over expiration the problem of the cure would be solved.

Voice is merely expired breath; if spasmodic stimuli came into play the result was spasmodic utterance. In all cases of stammerers the chest is badly shaped.

Dr. Dally referred to heredity and imitation, and laid stress on the part played by over-pressure in public schools. Coming to the practical point of educational treatment, Dr. Dally asked what is going to be done; there was much pious aspiration but little performance. Mr. MacMahon had talked of classes of 10 to 15, but the speaker thought that success would only follow individual treatment.

His plan would be: (1) To remove all obstructions of the upper nasal passages; (2) Take the child individually and teach breathing. He disagreed absolutely with Dr. Hulbert in regard to deep breathing. It was not synonymous with forcible breathing. Exercises should be designed for each individual case; you cannot do this *en masse*. (3) With regard to the nervous factor, deep breathing practised rhythmically had a great sedative effect. Hurry, scurry and worry should be avoided, especially all forms of school pressure. But he insisted first and last that the chief factor is respiratory.

THE PRESIDENT asked what percentage of children, apart from stammerers, would have defect of the upper respiratory passages.

Dr. Dally replied that it would be found to be much less than he had seen in stammerers.

DR. LOWRY referred to the fact that boys suffered much more frequently than girls and asked for an explanation. She also referred to the curious fact that although girls suffered

infrequently, yet they do not use lower costal breathing, and yet that had been suggested as a cure for boys.

DR. BATTEN wished to be assured that it was possible to cure stammerers by taking several together in a class. Dr. McHattie had referred to stammering as a functional neurosis; this was a term which explained nothing. He pointed out that other diseases of co-ordination could be cured by teaching patients to perform movements anew. He hoped the opener would not press psychotherapeutics and hypnotic suggestion. If he intended to apply hypnotic suggestion in the treatment of school children, it would be attended by disaster. In Germany the stammerers were divided into two types. In one the trouble came on early in childhood and was difficult to cure. In the other class stammering arose at the age of 10-12 in children suffering from emotional disturbance—this was most easy to cure.

He did not like Mr. MacMahon's pathology, which was fanciful, but his practical suggestions were of the greatest value.

DR. MCHATTIE, in his reply, said that in speaking of quacks he meant those people who are quacks and who pretend to do things that they cannot perform. By mechanical aids he meant such devices as teaching people to slap their thighs. He agreed with Dr. Hulbert that it was most important to teach correct breathing, but that was by no means everything. The fact that stammerers could sing and even recite showed there was no difficulty in the peripheral mechanism. There was a difference between the production of voice and speech. It is when the intellectual effort involved in speech production came into play that stammering ensued. The trouble was, therefore, on a higher plane than most of the speakers had represented. He agreed that a patient should work out his own salvation, and unless he made a strenuous effort he would not be cured.

In breathing the great thing is to be able to control the outflow of air through the glottis; it does not matter otherwise so much how they breathe. The patient did not think in speaking whether he was going to produce a vowel or a consonant, his difficulty was to co-ordinate thought-flow with utterance.

Dr. Dally had probably better facilities for examining throats than he himself possessed in school work, but he himself had found nothing like the proportion of nasal and

throat defects; in fact, he was surprised, in his own experience, how infrequently they occurred.

With regard to the possibility of improvement by taking several stammerers together in a class, he considered this was proved by German experience, and gave the Hamburg figures, which showed that in three years out of 334 boys and 58 girls treated in this way, 186 boys were cured and 24 girls; while in only one boy and no girl was no improvement noted.

The President, in conclusion, referred to the fact that boys suffered much more than girls, and suggested that for long periods of time in human history men were engaged upon pursuits, such as hunting, where speaking was a disadvantage, while women in the seclusion of the home had little else to do. He considered that the speech traits in the female were more stable and less easily perturbed.

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